

*AMENDMENTS TO THE CLAIMS*

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Previously Presented and Withdrawn) A method of treating a cancer in a mammal, comprising administering to a mammal afflicted with cancer an IL-21 polypeptide, variant, or fragment of either of the foregoing in an amount effective to treat the cancer in the mammal.

2. (Previously Presented and Withdrawn) The method of claim 1, wherein administering an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises administering to the mammal a polynucleotide encoding the IL-21 polypeptide, variant, or fragment in an amount effective to treat the cancer in the mammal.

3. (Previously Presented and Withdrawn) The method of claim 2, comprising administering an expression vector containing the polynucleotide.

4. (Previously Presented and Withdrawn) The method according to claim 3, wherein the expression vector is pORF.

5. (Previously Presented and Withdrawn) The method according to claim 1, wherein the cancer is a melanoma, a sarcoma, or a colon cancer.

6. (Canceled).

7. (Canceled).

8. (Withdrawn) The method according to claim 1, wherein the IL-21 polypeptide, variant, or fragment of either of the foregoing is co-administered with a vaccine, an antigen-specific T lymphocyte, a cytokine, or a combination thereof.

9. (Canceled).

10. (Canceled).

11. (Previously Presented and Withdrawn) The method according to claim 8, wherein the vaccine is a recombinant viral vaccine or a peptide vaccine.

12. (Previously Presented and Withdrawn) The method according to claim 8, wherein the cytokine is IL-2, IL-7, or IL-15.

13. (Previously Presented and Withdrawn) The method according to claim 8, wherein the antigen-specific T lymphocyte is a tumor specific T lymphocyte.

14. (Previously Presented and Withdrawn) A method of treating an immune-related disease in a mammal, comprising administering to a mammal afflicted with an immune-related disease an IL-21 polypeptide, variant, or fragment of either of the foregoing, in an amount effective to treat the immune-related disease in the mammal.

15. (Previously Presented and Withdrawn) The method of claim 14, wherein administering an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises administering to the mammal a polynucleotide encoding the IL-21 polypeptide, variant, or fragment in an amount effective to treat the immune-related disease in the mammal.

16. (Previously Presented and Withdrawn) The method of claim 15, comprising administering an expression vector containing the polynucleotide.

17. (Previously Presented and Withdrawn) The method according to claim 16, wherein the expression vector is pORF.

18. (Previously Presented and Withdrawn) A method of preventing a cancer in a mammal, comprising administering to a mammal an IL-21 polypeptide, variant, or fragment of either of the foregoing in an amount effective to prevent the cancer in the mammal.

19. (Previously Presented and Withdrawn) The method of claim 18, wherein administering an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises administering to the mammal a polynucleotide encoding the IL-21 polypeptide, variant, or fragment in an amount effective to prevent the cancer in the mammal.

20. (Previously Presented and Withdrawn) The method of claim 19, comprising administering an expression vector containing the polynucleotide.

21. (Previously Presented and Withdrawn) The method according to claim 20, wherein the expression vector is pORF.

22. (Previously Presented and Withdrawn) The method according to claim 18, wherein the cancer is a melanoma, a sarcoma, or a colon cancer.

23. (Canceled).

24. (Canceled).

25. (Previously Presented and Withdrawn) The method according to claim 18, wherein the IL-21 polypeptide, variant, or fragment of either of the foregoing is co-administered with a vaccine, an antigen-specific T lymphocyte, a cytokine, or a combination thereof.

26. (Canceled).

27. (Canceled).

28. (Previously Presented and Withdrawn) The method according to claim 25, wherein the vaccine is a recombinant viral vaccine or a peptide vaccine.

29. (Previously Presented and Withdrawn) The method according to claim 25, wherein the cytokine is IL-2, IL-7, or IL-15.

30. (Previously Presented and Withdrawn) The method according to claim 25, wherein the antigen specific T lymphocyte is a tumor-specific T lymphocyte.

31. – 57. (Canceled).

58. (Previously Presented and Withdrawn) A method for inducing apoptosis of a natural killer (NK) cell comprising contacting the NK cell with an amount of an IL-21 polypeptide, variant, or fragment of either of the foregoing, effective to induce apoptosis of the natural killer cell.

59. (Currently Amended) A method of inducing apoptosis of a natural killer (NK) cell comprising contacting the NK cell with a polynucleotide encoding SEQ ID NO: 6 or 8, in an amount effective to induce apoptosis of the NK cell *in vivo*.

60. (Previously Presented and Withdrawn) A method of activating NK cell cytolytic activity, comprising contacting the NK cell with an amount of an IL-21 polypeptide, variant, or fragment of either of the foregoing, effective to activate NK cell cytolytic activity.

61. (Previously Presented and Withdrawn) The method of claim 60, wherein the natural killer cell is *in vitro*.

62. (Previously Presented and Withdrawn) The method of claim 60, wherein the natural killer cell is *in vivo*.

63. (Previously Presented and Withdrawn) The method of claim 60, wherein contacting the NK cell with an IL-21 polypeptide, variant, or fragment of either of the foregoing comprises contacting the NK cell with polynucleotide encoding the IL-21 polypeptide, variant or fragment, effective to activate NK cell cytolytic activity.

64. - 67. (Canceled).

68. (Previously Presented and Withdrawn) A method of decreasing the number of natural killer (NK) cells in a host, comprising administering to a host a polynucleotide encoding SEQ ID NO: 6 or 8 in an amount effective to decrease the number of NK cells in the host.